Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of the Petition of)
)
HARRIS CORPORATION)
)
For Amendment of Part 2, 21 and 94)
of the Commission's Rules) RM-7722
Concerning Channel Assignments)
in the 27.5-29.5 GHz Band)

COMMENTS OF
MOTOROLA MICROWAVE

Motorola Microwave, by its undersigned attorneys, hereby submits these comments in response to the Petition for Rulemaking filed at the Commission on April 19, 1991, by Harris Corporation -- Farinon Division ("Harris") urging the Commission to adopt a channelization plan for the 27.5-29.5 GHz band (the "28 GHz band") for use in, among other services, personal communications services ("PCS").[1/] Harris also requests that the Commission amend its rules to permit Part 94 private operational fixed licensees, in addition to common carrier microwave operators licensed under Part 21, to use the 28 GHz frequencies. Motorola Microwave opposes Harris' Petition because Harris' proposal, if adopted, will hinder the ability of U.S. manufacturers to compete in the international market for personal communications service equipment, will unnecessarily raise the cost of personal communication services to the U.S. public, and will make inefficient use of critical U.S. spectrum resources.

[1/] Harris' Petition was placed on public notice by the Commission's Public Notice document released May 15, 1991, Report No. 1845, corrected in Report No. 13126, released May 16, 1991.

INTRODUCTION

Motorola Microwave,[2/] headquartered in Bloomingdale, Illinois, is a leader in the design, manufacture, installation and service of analog and digital microwave radio transmission systems. Motorola, Inc., one of Motorola Microwave's parent organizations, pioneered the first analog private microwave systems in 1948. Today, Motorola Microwave is a major manufacturer of high-quality microwave radio equipment used in the Part 21 common carrier point-to-point and Part 94 private operational-fixed microwave services. Motorola Microwave's products include a wide variety of microwave radio equipment using the 2 to 23 GHz frequency range with capacity to 45 Mbps.

As a major supplier of state-of-the-art microwave radio equipment and a well-recognized leader in product innovations, Motorola Microwave is sensitive to the direction of new developments in advanced wireless technologies and the customer demand for equipment utilizing such new technologies. Motorola Microwave is also mindful of the increasing spectrum congestion and the corresponding need to promote spectrum efficient technologies and frequency plans. As a result, Motorola Microwave fully supports changes in the Commission's rules that will facilitate the rapid and efficient introduction of personal

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[2/] Motorola Microwave is a joint venture company formed between TeleSciences, Inc. and Motorola, Inc. TeleSciences is a well-recognized leader in the microwave industry and the chief innovator of 2 GHz digital microwave radio technology in the 1970s.

communications services and other advanced communications services in a manner that promotes the most efficient use of the spectrum. With that goal in mind, Motorola Microwave recently concluded development of a technical and operational plan to use the 38 GHz frequencies currently allocated to the Part 21 services for the purpose of, among other things, interconnecting microcellular cell sites in PCS systems.[3/] Based on extensive research and development, including consultation with domestic and foreign prospective PCS system operators, Motorola Microwave has determined that the 38 GHz frequencies presents the most efficient and technically viable method of providing microcell radio links for PCS systems.[4/] Motorola Microwave therefore has a strong interest in the Harris proposal.

According to Harris' Petition, relatively little demand existed for higher frequencies in the past because of the propagation limits of those frequencies, the lack of available

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3/ As discussed below, Motorola Microwave plans to submit its 38 GHz proposal to the Commission in the immediate future.

4/ American Personal Communications ("APC") recently expressed support for the use of the 38 GHz frequencies allocated under Part 21 for PCS microwave in its May 3, 1991 Petition for Rulemaking proposing to create a new PCS service within Part 22 of the Commission's Rules. Petition of American Personal Communications for Amendment of the Commission's Rules to Allocate Spectrum for Provision of Personal Communications Services ("PCS") and PCS Microwave, and to Create a New Subpart of the Commission's Rules to Authorize PCS As a New Service, filed May 3, 1991. By a letter from Thomas Stanley, Chief Engineer, Office of Engineering and Technology, the Commission recently denied APC's petition without prejudice and ruled that APC's PCS proposal would be considered as comments in the Commission's Notice of Inquiry Proceeding concerning Personal Communications Service (Gen. Docket No. 90-314).

equipment, and the availability of lower frequencies suitable for point-to-point microwave radio services. In its petition, Harris maintains that, driven by congestion in lower frequencies, a substantial consumer demand currently exists for microwave radio products which operate on higher frequencies. Harris does not analyze in its Petition which frequencies would be most appropriate, based on technical, economic, and spectrum conservation considerations, to meet this perceived demand. Instead, Harris merely asserts that the Commission should adopt a channelization plan in the Part 21 services for the 28 GHz frequencies to meet this growing consumer demand. Harris argues that channelization of the 28 GHz band is warranted particularly in light of the advent of PCS and the corresponding need to interconnect microcells, and to link microcells to switches and to the public network.

Harris also proposes that the Commission amend its rules to make the 28 GHz band available to Part 94 licensees. According to Harris, a Part 94 allocation is justified because experience has demonstrated that sharing between Fixed Satellite Services and microwave services is feasible, the Commission has favored shared allocation schemes for common carrier and private microwave services, there exists a need for additional private microwave spectrum, including for the purpose of implementing PCS, and Part 94 eligibility will maximize use of the 28 GHz band.

As discussed below, Harris has not demonstrated sufficient reasons to adopt a channelization plan for the 28 GHz band or for the Commission to amend its rules to authorize Part 94 operations on the 28 GHz frequencies.

DISCUSSION

I. DESIGNATING 28 GHZ FREQUENCIES FOR PCS SYSTEMS WILL HANDICAP U.S. MANUFACTURERS IN THE INTERNATIONAL PCS EQUIPMENT MARKET AND DISADVANTAGE U.S. CONSUMERS

In proposing that the 28 GHz band be channelized so that microwave service providers can use these high frequencies for the many short-haul paths required to link microcells in PCS systems, Harris ignores the fact that if the Commission follows Harris' approach the U.S. manufacturing industry and the public will be disadvantaged given that several European countries have already adopted or will likely endorse use of 38 GHz frequencies for PCS systems. The United Kingdom, for example, has specifically allocated the 37.0-39.5 GHz band for PCS microcell interconnection.[5/] Further, PCS operators and government entities in other European countries intend to use or are currently exploring the use of 38 GHz equipment in PCS systems. Motorola Microwave, along with other U.S. manufacturers, has discussed the use of 38 GHz equipment with several European entities and have conducted 38 GHz equipment demonstrations and provided price quotes for such equipment.

[5/] See the U.K. Department of Trade and Industry, Radiocommunications Division MPT1414 Performance Specifications.

Clearly, Harris' proposal to designate the 28 GHz band for use in PCS systems, if adopted, will establish a U.S. equipment and operating standard that is inconsistent with the worldwide trend to use the 38 GHz frequencies for such purposes.[6/] As a result, among other difficulties raised by adopting inconsistent technical requirements, U.S. manufacturers will not be able to take advantage of the substantial manufacturing economies of producing high frequency microwave equipment operating on a single frequency band. Instead, U.S. manufacturers wishing to compete in both domestic and international markets[7/] will be forced to manufacture to two different technical requirements. Harris' proposal to use frequencies for microcell interconnection in U.S. PCS systems different than those authorized in Europe will unnecessarily increase the cost of manufacturing such equipment and ultimately the cost of PCS service available to the U.S. public.

II. USE OF THE 28 GHZ FREQUENCIES IN PCS SYSTEMS WILL NOT PROVIDE THE MOST EFFICIENT SPECTRUM UTILIZATION POSSIBLE

[6/] Motorola Microwave believes that neither existing nor foreseeable future capacity requirements supports designation of both the 28 GHz and the 38 GHz frequencies for PCS microwave and other fixed applications. As discussed further below, it is Motorola Microwave's position that the Commission should open the 38 GHz frequencies for PCS microwave and other uses.

[7/] Motorola Microwave submits that in today's increasingly global business market, foreign sales are a significant portion of business for most, if not all, major U.S. equipment manufacturers.

According to Harris, the 28 GHz frequencies will be ideal for use in implementing PCS services by providing the necessary link between microcells, between microcells and switches and between PCS systems and the public network. Harris provides virtually no facts or analysis in its Petition to demonstrate why the use of 28 GHz frequencies is superior to other high frequency bands, such as the 38 GHz band. Harris merely states that "[t]he short path lengths that are characteristic of the higher microwave bands such as the 28 GHz band will be particularly well-suited for connecting [numerous] microcells . . . " Harris Petition at 5.

In fact, as compared to the 28 GHz band, the higher 38 GHz frequencies and corresponding shorter path distances for the 37.0-39.5 GHz band allow greater frequency reuse while meeting the path length requirements for PCS systems.[8/] Accordingly, Motorola Microwave concurs with American Personal Communications' view that the 37.0-39.5 GHz band is most appropriate for microcell interconnection and will provide the necessary capacity for future growth. Any additional applications that cannot be serviced by the 37.0-39.5 GHz band based on path considerations

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[8/] As a part of its submission concerning the 38 GHz band to be filed in the near future, Motorola Microwave will set forth in detail its analysis indicating that use of 38 GHz frequencies for PCS systems is superior, in terms of frequency utilization, to other alternative frequency bands.

can utilize the existing, uncongested 21.2-23.6 GHz band.[9/] Based on its extensive technical and operational analysis in this area, Motorola Microwave believes that the 38 GHz band is the preferable choice of PCS microwave frequencies. Motorola Microwave does not anticipate any requirement for additional spectrum in the 28 GHz band at this time and recommends that those frequencies be reserved for future use. Accordingly, the Commission's policies favoring the most efficient use of scarce spectrum require that the Commission refrain from adopting Harris' proposal.

CONCLUSION

For the reasons discussed above, Motorola Microwave opposes Harris' Petition for Rulemaking urging the Commission to make the 28 GHz frequencies generally available for use by common carrier and private microwave licensees for use in PCS systems, among other applications. Harris' proposal, if adopted, would place domestic equipment requirements at odds with the requirements of PCS systems in foreign countries. As a result, U.S. manufacturers would not be able to take advantage of substantial economies of scale to produce equipment for use in the U.S. and

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[9/] In particular, Part 94 operational fixed licensees seeking longer path lengths than that available in the 38 GHz band could use the currently underutilized existing band at 21.2-23.6 GHz. Motorola Microwave would thus anticipate that the use of the 38 GHz band would also encourage more efficient utilization of currently available lower frequencies.

abroad under uniform requirements. Further, the 28 GHz band, as compared to the 38 GHz band, does not present the most spectrum efficient alternative given that 38 GHz frequencies offer superior frequency reuse. In Motorola Microwave's view, the 37.0-39.5 GHz band is more appropriate than the 27.5-29.5 GHz band for microcell interconnection and would provide adequate capacity for future growth of both personal communication services and other fixed applications. Accordingly, the public interest requires that the Commission deny Harris' petition and reserve the 28 GHz frequencies for future requirements.

Respectfully submitted,

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